

# **An Improved Electronic Interface For Use With Dual Electrode Capacitance Diaphragm Gauges**

## **Abstract of Disclosure**

Systems and methods for determining differential currents in a pair of circuits. In a preferred embodiment, an excitation voltage and a tightly coupled differencing current transformer are coupled to a differential capacitance manometer to generate a differential current. This differential current is input to a low-impedance summing node of a charge amplifier that effectively integrates the differential current. A shielding structure surrounding the current transformer and amplifier is driven to the excitation voltage potential. The output of the charge amplifier is passed through a common mode transformer which is coupled to the excitation voltage source in order to remove the guard potential (corresponding to the excitation signal) from the output signal. A synchronous detector then converts the resulting signal to a DC level indicative of the differential capacitance of the sensor.

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